

Heritage Strategy

Environmental Report

November 2012



Contents

ITEM	PAGE
1. Non-technical summary	01
2. Introduction	02
2.1 Content and Purpose of the Strategy	03
2.2 Key Facts	03
3. Context	04
3.1 Other plans, strategies and environmental objectives	04
3.2 Environmental Baseline	06
3.3 Environmental Issues	09
4. Environmental Assessment	10
4.1 Assessment Approach and Methods	10
4.2 Alternatives Considered	11
4.3 Assessment Findings	11
5. Mitigation and Monitoring	15
5.1 Mitigation	15
5.2 Monitoring	16
5.3 Next Steps	16

1. Non-technical summary

1.1 Introduction

Plans, programmes and strategies that a) fall under the Environmental Assessment (Scotland) Act 2005 and b) have the potential to have significant environmental effects have to be assessed before they are adopted. We have assessed Scottish Canals Heritage Strategy 2013–38 because it meets these criteria. This type of assessment is called strategic environmental assessment (SEA).

This Environmental Report:

- describes the context of the Heritage Strategy
- describes the relevant aspects of the environmental baseline
- explains how the environmental assessment was carried out
- sets out the findings of the environmental assessment
- makes recommendations for mitigating the negative effects and improving the positive effects of the strategy
- explains how significant or unknown effects will be monitored

1.2 Context

One of the early stages of the SEA process is to consider how the strategy relates to other relevant policies, plans, strategies and environmental objectives. Section 3.1 describes the key environmental objectives we identified and the context of the heritage strategy.

Historic Scotland, the Scottish Environment Protection Agency (SEPA) and Scottish Natural Heritage (SNH) have been consulted on the proposed approach and scope of the assessment. We decided to focus upon three topics – 1) biodiversity, flora and fauna, 2) cultural heritage and 3) landscape. Section 4.1 sets out our reasons for this.

In order to help consider the effects of the strategy we gathered information for each of the five canals. Section 3.2 of the Environmental Report summarises the environmental baseline.

1.3 Environmental Assessment

We used a set of questions, called SEA objectives, to help predict the environmental effects of the strategy. These are shown in Table 5. This is a common way of assessing the environmental effects of plans, and helps to make the assessment systematic and consistent.

Overall the actions and objectives within the draft strategy were found to have positive effects, those for cultural heritage being significant. An uncertain effect was identified for biodiversity, however, potential negative impacts would be mitigated at project level through our existing processes and the cumulative impact is likely to be neutral.

1.4 Mitigation and Monitoring

We felt that any negative effects were likely to be of a nature and scale that could be mitigated when actions were carried out. Each action assessed as having an environmental effect will be evaluated, mitigated and monitored through our Environmental Management System.

1.5 Your Feedback

This Environmental Report accompanies the draft Scottish Canals Heritage Strategy 2013–38. We welcome any comments that you would like to make on either document by 14 January 2013.

Please go to www.scottishcanals.co.uk/draft-heritage-strategy/your-feedback to see the different ways you can send us your views. The questions in this report may help to structure your response.

2. Introduction

2.1 Content and Purpose of the Strategy

The Scottish Canals comprise a collection of nationally important, 200-year-old working monuments, which together represent a key development during Scotland’s Industrial Revolution.

The heritage strategy covers a wide variety of canal-related heritage, including historic engineering structures, historic buildings, archaeology, artefacts, archives, natural heritage, cultural landscapes as well as associated, non-physical heritage such as music and literature, oral testimony and historical events. It focuses on heritage assets of particular cultural significance and conservation need as well as objectives that will deliver public benefits.

The strategy can be viewed or downloaded from www.scottishcanals.co.uk/draft-heritage-strategy. Its purpose is described in 2.2 Key Facts below:

2.2 Key Facts

Responsible Authority	British Waterways Board operating as Scottish Canals
Title of strategy/plan	Heritage Strategy
Subject	Cultural heritage
Period covered	2013–38
What prompted the strategy/plan	Significant change has provided us with the opportunity to review our strategic direction. From 2 July 2012, British Waterways Board has operated solely in Scotland, remaining a public corporation sponsored by Scottish Government. Our trading name is ‘Scottish Canals’. British Waterways was formerly a cross-border public corporation. In England and Wales, a new charity, the Canal & River Trust, has taken over the former role of British Waterways.
Frequency of updates	The overall strategy will be reviewed in 2017. As we complete actions and our baseline audit, objectives will be reviewed on a yearly basis.
Area affected	Forth & Clyde, Union, Monkland, Caledonian and Crinan Canals
Purpose of strategy/plan	<ul style="list-style-type: none"> to tackle the major risks to canal heritage and provide a framework for its enhancement to obtain a clear understanding of the values and condition of our heritage in order to prioritise and measure benefits to identify specific, measurable outputs for the next 5 years to maximise benefits across all Scottish Canals’ functions
Contact point for queries	Dr Sabina Strachan Senior Heritage Advisor Canal House 1 Applecross Street Glasgow G4 9SP

3. Context

3.1 Other plans, strategies and environmental objectives

The Heritage Strategy sets out Scottish Canals' policy for heritage management as well as a 5-year project plan which will benefit our heritage and people. It will sit within this hierarchy:



In preparing the Heritage Strategy we have considered the relationship of other legislation, policies, plans and strategies. This has helped to ensure objectives are complementary and to work out where mitigation could best be implemented.

The documents reviewed and key environmental objectives are set out below.

Plans or Strategies	Environmental Objectives
<p>Scottish Canals</p> <ul style="list-style-type: none"> • British Waterways Act 1995 (Section 22) • Scotland's Canals: An Asset for the Future 2002 • Scottish Canals Business Plan 2012/13 • The Waterways Trust Business Plan 2012/13 	<p>The strategy will aim to help deliver Scottish Canals' and the Scottish Waterways Trust's duties, policies and existing heritage objectives:</p> <ul style="list-style-type: none"> • to consider conserving or enhancing landscape, biodiversity and the historic environment when developing proposals • to take into account any environmental effects of our proposals • to protect and promote environmentally significant features for public benefit
<p>Development Management</p> <ul style="list-style-type: none"> • Scottish Planning Policy 2010 • National Planning Framework for Scotland 2 2009 • Planning Advice Note 2/2011: Planning and Archaeology • Current and draft local plans and relevant supplementary planning guidance • Glasgow Canals Development Framework 2004 • Green Network Strategies e.g. Central Scotland Green Network, The Vision 2011 • Core Path Plans e.g. Highland Council Core Path Network Plan 2011 • Maryhill Town Centre Action Plan 2011 • Masterplans e.g. Tamfourhill, Falkirk 2011 • Local community plans e.g. Ardrishaig Placemaking report 2009 	<p>The strategy will help to deliver objectives relating to statutory and non-statutory heritage, landscape and biodiversity, canal area regeneration, access and green network management, such as:</p> <ul style="list-style-type: none"> • to provide the framework for the protection, conservation and enhancement of the historic environment • to create integrated habitat networks • to support opportunities for enjoyment and understanding of the natural heritage • to facilitate positive change whilst maintaining and enhancing landscape character • to create an environment for sustainable growth, health, well-being and mitigate climate change • to draw up a system of 'core paths' to create more sustainable, healthier places

Plans or Strategies

Environmental Objectives

Biodiversity, Flora and Fauna

- Biodiversity: The UK Action Plan 1994
- Scotland's Biodiversity – It's in Your Hands 2004
- A Five Year Species Action Framework: Making a difference for Scotland's Species 2007
- British Waterways Biodiversity Action Plan 2005
- Local Biodiversity Action Plans e.g. Falkirk Area Biodiversity Action Plan 2011–2014
- Site of Special Scientific Interest Site Management Statements e.g. Dullatur Marsh 2010
- Green Network strategies e.g. Glasgow Clyde Valley Green Network Partnership Planning Guidance, Consultation Draft 2008

The strategy will include natural heritage objectives derived from biodiversity policies to conserve habitats, species and ecosystems. The policies note the importance of a holistic, landscape approach to biodiversity conservation. Their aims are:

- to halt the loss of biodiversity and continue to reverse previous losses through targeted action for species and habitats
- to protect and enhance species and habitats e.g. control of non-native species
- to increase awareness, understanding and enjoyment of the natural environment
- to manage access appropriately to avoid damage to habitats, and disturbance to wildlife, especially breeding birds, by heavy public use of sensitive areas
- to mitigate potentially negative environmental effects
- to protect and enhance wildlife and the environment, by providing accessible quality greenspace

Historic Environment

- Scottish Historic Environment Policy 2011
- Managing Change in the Historic Environment Guidance Notes
- Scotland's Past, Scotland's Future: Historic Scotland Corporate Plan 2012–15
- Future RCAHMS Business Strategy: the next five years 2010–2015
- Frontiers of the Roman Empire proposed extension, The Antonine Wall, Management Plan 2007–2012
- Antonine Wall Interpretation and Access Strategy, Consultation Draft 2012
- National Strategy for Business Archives in Scotland 2010

The strategy will deliver national policy for enhancing significant historic environment. Policies and plans also value townscapes, recording heritage and the setting of heritage assets. Objectives include:

- to identify, protect and where appropriate enhance historic environment assets
- to promote sustainable development
- to increase awareness, understanding and enjoyment of the historic environment
- to manage access appropriately to avoid damage to archaeological sites by heavy public use of sensitive areas
- to ensure that business archives are valued, accessible and developed in partnership

Landscape

- Council of Europe, European Landscape Convention 2000
- Natural Heritage Futures 2009
- The Town & Country Planning (Scotland) Act 1997 (Section 263A)
- Landscape Character Assessment reports e.g. Argyll and the Firth of Clyde 1996

The strategy includes objectives relating to distinctive cultural landscapes. Landscape policies aim to safeguard protected areas and to recognise and conserve wider landscapes:

- to enhance and, where appropriate, restore landscape character, local distinctiveness and scenic value
- to protect landscape character, local distinctiveness and scenic value

3.2 Environmental Baseline

To establish the environmental effects of the strategy, first we need to understand the environmental baseline of the area that is likely to be affected. The following is arranged by the three SEA topics that have been scoped into this assessment: 1) biodiversity, flora and fauna, 2) cultural heritage and 3) landscape. Biodiversity, flora and fauna is subdivided by canal.

3.2.1 Biodiversity, flora and fauna

The narrow strip of land occupied by Scotland’s canals – 220km in length – contain a wide range of wildlife habitats including slow-flowing freshwater in the canal channel, emergent fringe vegetation, towpath grasslands, hedgerows, woodland and scrub, reedbeds and built structures such as locks, weirs, masonry walls, bridges, aqueducts and tunnels. The less obvious features of note are supply reservoirs and feeder streams which provide additional wildlife habitats on the network. The waterways are also an important link with adjacent habitats. As wildlife corridors they take the countryside into the town (particularly valuable in large conurbations), provide shelterbelts and foraging areas.

The canals provide habitats which sustain several internationally and nationally protected species. There are 22 Sites of Special Scientific Interest on or within 500m of the Scottish canals. 9 of these are within Scottish Canals’ ownership boundary. The canals are included within EU Natura 2000 sites (1 Special Protection Area and 3 Special Areas of Conservation), one of which is also a National Nature Reserve. Local non-statutory designated areas also apply and the canals are within or adjacent to several wildlife reserves and country parks.

Designation	No. of sites
Special Protection Area (SPA)	1
Special Area of Conservation (SAC)	3
Sites of Special Scientific Interest (SSSI)	9
National Nature Reserve	1
Local Nature Conservation Site	5
Local Nature Reserve	3

Table 1: Natural heritage designations within Scottish Canals’ ownership boundaries

Forth & Clyde and Union Canals

The Forth & Clyde and Union are the only waters in Scotland to be designated Cyprinid (Coarse) fish waters under the European Directive on Freshwater Fisheries. Uniquely, the Forth & Clyde crosses the catchments of two large rivers and so plants and animals which might otherwise be geographically separated have come into contact with each other. This, coupled with two centuries of natural colonisation, boat traffic and uncontrolled introductions, has contributed to a living ‘melting pot’, biologically unique in Scottish terms. One plant species, the Hybrid Curled Pondweed, is recorded from the Forth & Clyde and nowhere else in the world.

Following their closure to through navigation in the early 1960s the Union and the Forth & Clyde became fragmented, with sections being infilled and culverted. Throughout this period of closure the flow of water was maintained allowing the aquatic ecosystem to develop undisturbed for many years. Reopened in 2001, today they support animal and plant species more typical of southern England. Wetland habitats are of particular value, especially in lowland Scotland where slow-flowing, pond-like conditions are uncommon. The Forth & Clyde is part of the Glasgow and Clyde Valley and Central Scotland Green Networks.

Five species of bat have been recorded on the Forth & Clyde and Union as part of a 7-year project which commenced in 2000. These are Daubenton’s, Soprano pipistrelle, Bandit pipistrelle, Natterer’s and Brown Long-eared. Their related habitats and prey were also studied. A water vole survey was carried out on the Forth & Clyde in 2001 and found the priority species mammal along most of the canal from Erskine Ferry Road, Great Western Road, Westerton Station, Possil Marsh,

Kirkintilloch, Craigmarloch, Kelvinhead, Wyndford and within Falkirk. Evidence of badgers has also been recorded by Scottish Canals on the Forth & Clyde.

Ecological surveys of the Forth & Clyde and Union were carried out in 1997 in advance of the Millennium Link project. The following table summarises the flora and bird species data.

Plants	Forth & Clyde	Union
Total notable species	15 (11 open water; 3 emergent; 1 damp ground)	10 (8 open water, 2 emergent)
No. exclusive to each canal (5 species occur on both)	10	5
Breeding Birds		
Total no. of species recorded	50	41
No. of species of conservation interest dependent on canal aquatic habitat	10	8
No. of species of conservation interest within canal corridor	6	5

Table 2: Summary data from 1997 species surveys: Forth & Clyde and Union Canals

Crinan Canal

The Argyll & Bute Local Biodiversity Action Plan (2010–15) is not specific about which priority species are present on or near the Crinan Canal. However, the neighbouring Moine Mhor and Knapdale Lochs are protected for their habitats to support breeding birds (including a nationally important breeding population of black-throated diver), the otter and the Marsh Fritillary butterfly. The Devil's bit scabious, which grows along the canal, contributes to the survival of the Marsh Fritillary. An aquatic vegetation and benthic macroinvertebrates survey of the Crinan Canal was carried out in 1999 to assess effects of new and historical pumping regimes. 16 species of aquatic plants were present and 18 microinvertebrate taxa were collected. The European Beaver was introduced to the area in 2009 and has been spotted on the canal.

Caledonian Canal

The Caledonian Canal corridor is noted as an important habitat in its own right in the Inverness & Nairn and Lochaber Local Biodiversity Action Plans (2004). Priority species include the otter, kingfisher, water shrew and Daubenton's bat. Some migratory fish also use the canal. Bankside habitats, beech trees and pockets of un-grazed marsh and swamp have evolved which provide valuable wildlife habitats. The Caledonian also provides a nursery area for lampreys which are protected under the EU Habitats Directive.

Monkland Canal

The North Lanarkshire Local Biodiversity Action Plan (2008) describes the Forth & Clyde and the remnants of the Monkland as being rich in wildlife. The Monkland still provides a water source for the Forth & Clyde but most of it is piped with the two main stretches still in water owned by Scottish Canals. One of these runs through the wildlife-rich Drumpellier Country Park.

Invasive Species

Mink has been recorded on all of the Scottish canals. Zebra mussels have been found on a number of boats but have not yet found growing on structures. Japanese knotweed and Himalayan balsam have also been recorded growing alongside all of the canals.

3.2.2 Cultural heritage

The full extent of the historic routes of the Forth & Clyde, Crinan, Union and Caledonian (excluding the navigable lochs) are scheduled monuments and therefore of national importance. Some of the reservoirs and feeder channels are also scheduled. A draft scheduling proposal for the

Monkland has been prepared and it is likely to be designated in 2013. The remains of only one other canal in Scotland are scheduled, the Aberdeenshire Canal (built 1796–1805, closed 1854).

The Antonine Wall was designated in 2008 as being of international significance when it was added to the inscription of the Frontiers of the Roman Empire trans-boundary World Heritage Site. Scottish Canals’ landownership includes parts of 5 scheduled sections of the Antonine Wall as well as 3 other scheduled monuments. Albeit separated by over 1,600 years, the builders of both of the major undertakings of the Antonine Wall and the Forth & Clyde Canal forged the same path across Scotland. Almost all of The Falkirk Wheel–Cadder stretch (c. 17 miles) is within the World Heritage Site’s Buffer Zone. In fact, the Millennium Link extension of the Union tunnels underneath the Wall which emerges to join a modern aqueduct and The Falkirk Wheel boat-lift.

101 of Scottish Canals’ engineering structures and individual buildings are listed. Some of these are also scheduled. In 2011/12, a rapid assessment of Scottish Canals’ buildings concluded that 123 individual buildings have some heritage value – not all are of listable quality however. 7.7 km of the Crinan is designated as a Conservation Area and a further 9 Conservation Areas include sections of canal.

Designation	Total	Sub-category	Number
World Heritage Site (WHS)	1	canal	0
		other	1
Scheduled Monument (SM)	47	canal	39
		other	8
Listed Building (LB)	101	A	9
		B	61
		C	31
Conservation Area	10	canal	1
		other	9

Table 3: Historic environment designations within Scottish Canals’ ownership boundaries

3.2.3 Landscape

Scotland’s canals make a significant contribution to the landscapes they sweep or cut through. For example Neptune’s Staircase is set dramatically in the lee of Ben Nevis and the ‘arms’ of Clachnaharry Sea Lock basin reach out into the Beaully Firth. In urban settings, structures like Slateford Aqueduct and its neighbouring 14-arch railway viaduct form a pair of imposing structures which characterise the Longstone area of Edinburgh. Parts of the Lowland Canals also pass through relict industrial landscapes; in places the Union sits in the shadow of massive shale bings. The Antonine Wall stretches from the coastal landscape at Bo’ness through the broad valleys and agricultural farmland, to Glasgow and West Dunbartonshire and the Forth & Clyde shares much of this same corridor.

There is no doubt that the Crinan traverses one of the most picturesque landscapes of any canal in Britain and can be seen as the lynchpin of Knapdale, one of the most beautiful areas of Scotland and a National Scenic Area (NSA). Scotland’s canals also form part of several Special Landscape Areas. For example, the beech tree-lined ‘Laggan Avenue’ forms part of the Loch Lochy and Loch Oich Special Landscape Area, described as part of the “grand processional way” along the Great Glen. Although not designated as such, it could also be described as a designed landscape; some of the trees were allegedly planted under the instruction of Thomas Telford himself. The canals contribute to the setting of some designated Gardens & Designed Landscapes, such as Tomnahurich Cemetery in Inverness.

3.2.4 Gaps and/or unreliability of the Environmental Baseline data

The following summarises the gaps and/or unreliability of the SEA baseline data, and how they were minimised:

- The canals are linear features which occupy a small area of land within each local authority area. The environmental baseline information available on biodiversity, flora and fauna is typically produced at a local authority level, and therefore wider trends have been applied to the Caledonian, Crinan and Monkland.
- Due to the environmentally significant Millennium Link project, extensive baseline data on biodiversity, flora and fauna was commissioned by Scottish Canals (then British Waterways) from 1997 on the Forth & Clyde and Union. Survey work since then has been confined to individual engineering/development projects.
- Some information on plant species is available from hazardous tree surveys, but their scope has been focused on hazardous trees only and not on notable species and conservation issues.
- Scottish Canals has access to in-house heritage & environment expertise. This local knowledge has assisted in minimising the potential impacts of existing gaps in the survey data used by this assessment.

3.3 Environmental Issues

The purpose of the heritage strategy is to set out how Scottish Canals proposes to care for Scotland's canal heritage. It is not a development framework for the canal network nor does it provide an access strategy. The strategy itself identifies key issues and opportunities which we seek to address in the 5-year plan (<http://www.scottishcanals.co.uk/history--heritage/draft-heritage-strategy/5-year-plan/issues-and-opportunities>).

The primary environmental issue identified relates to the present condition of our some of our heritage assets. It is our intention to minimise any potentially negative environmental issues (such as habitat fragmentation) that may result from addressing these issues or achieving the strategy's vision. For example, there may be the potential for local effects on biodiversity through conserving specific built heritage assets. A limited number of site-specific projects related to access improvements are proposed and so there may be the potential for local effects on biodiversity from increased visitor numbers in these areas. These issues are considered in the assessment.

Question 1

Do you have any comments on the baseline environmental information and key issues?

4. Environmental Assessment

4.1 Assessment Approach and Methods

The table below lists each of the ten SEA topics or environmental parameters and explains why we have decided to assess the strategy only for its potential impacts on three areas 1) biodiversity, flora and fauna, 2) cultural heritage and 3) landscape.

SEA topic	Scoped in/out?	Reason
biodiversity, flora & fauna	IN	Both SNH and Historic Scotland advised that this topic be included as a precautionary measure in order to assess the potential for cumulative impacts of local actions on biodiversity function at a strategic level. The strategy includes objectives that should deliver positive impacts on biodiversity; however they may not be of a significant magnitude.
population	OUT	Any heritage-driven settlement-scale objectives over the plan period may have positive effects on population at a local level but these are unlikely to be of a significant magnitude. The purpose of the heritage strategy is to improve the condition of specific heritage assets, awareness and intellectual access, rather than physical access and provide additional recreational opportunities. Its implementation is unlikely to impact on the significant population of towpath users to a significant degree.
human health	OUT	These are SEA areas of interest for SEPA. SEPA's response to the Screening and Scoping reports was that the heritage strategy was unlikely to have significant environment effects on these areas. Although the strategy may have positive effects on human health in terms of mental health and well-being, these health benefits are not likely to be significant in the context of SEA. Some of the strategy's objectives will help deliver sustainability and climate change objectives of plans, programmes or strategies that sit higher up in the plan hierarchy. However, the strategy's own objectives are unlikely to have significant effects.
soil	OUT	
water	OUT	
air	OUT	
climatic factors	OUT	
material assets	OUT	
cultural heritage	IN	The purpose of the strategy is to bring about significant positive benefits on cultural heritage. SEA is intended to identify significant impacts – whether negative or positive.
landscape	IN	This topic has been included as a precautionary principle in order to assess the potential for cumulative impacts of local actions on landscape function at a strategic level. The strategy includes objectives that should deliver positive impacts on landscape value; however they may not be of a significant magnitude.

Table 4: Scope of assessment by SEA topic/environmental parameter

We have assessed the four strategic aims and groups of objectives identified in the 5-year plan using a series of questions designed to focus the assessment on the areas that will potentially lead to physical interventions. In particular, we have considered local impacts which could combine to create significant impacts over the length of the canals, or sections of them. The potential environmental effect key below should be referred to the assessment tables (Tables 6 and 8).

SEA topic	SEA Objective	SEA Criteria
	Will the objective/intervention...	How will the strategy effect...
biodiversity, flora & fauna	...prevent damage and encourage favourable condition to designated sites and protected species and undesignated biodiversity, flora and fauna ...manage access to the sites/canal appropriately to avoid damage to habitats and disturbance to wildlife, by heavy public use of sensitive areas	...SACs, SPAs, SSSIs ...protected species ...wildlife/greenspace value of canals themselves ...wider biodiversity
cultural heritage	...protect and where appropriate enhance the historic environment ...manage access to the site appropriately to avoid damage to historic assets by heavy public use of sensitive areas features and their setting	...SMs, LBs ...the Antonine Wall WHS ...the wider historic environment
landscape	...protect and where appropriate enhance the landscape value	...NSAs ...cultural landscape value

Table 5: SEA assessment questions

Potential environmental effect key					
Significant positive/positive	Positive and/ or negative	Negative	Significant negative	Uncertain	Neutral

4.2 Alternatives Considered

In carrying out a SEA we have to consider alternatives to the strategy and different ways of how the SEA could be prepared and implemented.

The environmental effects of not preparing a Scottish Canals heritage strategy were considered. The strategy provides a long-term framework for Scottish Canals, a public corporation, to understand and sustain canal heritage for the public. It is likely that, without a strategy, benefits would have been achieved but these may have had less public participation in their design and less likely to be structured, prioritised and sustainable.

We also revisited the scope of the heritage strategy and considered whether it could expand to become a 'policy framework' for Scottish Canals' future activities and projects which would provide a structure for us to consider environmental, social and economic benefits to determine priorities. We discussed whether it should be a joint strategy with the Scottish Waterways Trust. And at the same time, Glasgow City Council considered developing its own Canal Cultural Strategy. We believe that the present proposal will result in considered, deliverable outcomes which best serves all three bodies, the public and the environment.

We have considered how this SEA should be prepared and implemented. We originally planned to outsource the SEA. We then reviewed this option following consultation with Historic Scotland, SNH and SEPA at the Screening/pre-Scoping stage. The heritage strategy itself is being prepared by Scottish Canals' heritage & environment team, who will also have responsibility for overseeing its implementation and advising on mitigation at individual project/activity level. Only three topics were scoped into the assessment and the likelihood of identifying any significant negative impacts was regarded as low. We therefore decided to carry out the assessment in-house.

We also considered whether we should assess specific proposals or maintain a high level/objective-led approach and looked to past examples to determine which approach might be most suitable. As a group of linear monuments, the recent Historic Scotland SEA of the Antonine Wall WHS Interpretation & Access Strategy provided a useful parallel. Following feedback from SNH, we have built in methods to identify cumulative impacts. Scottish Canals has an Environmental Management System and individual projects and activities are subject to routine assessment. We considered whether we should develop a 'sustainability checklist' as described in the Antonine Wall SEA, but instead we will apply our existing system as we believe that it is fit-for-purpose.

Question 2

Do you have any comments on the scope and approach taken for the environmental assessment?

4.3 Assessment Findings

4.3.1 Summary of Findings

The strategic aims are likely to result in largely significant positive or positive effects for the three environmental topics assessed. Most of the 5-year plan objectives which will or could lead to physical intervention during the strategy lifespan have been assessed to have the potential to result in significant positive or positive environmental effects. Overall, the cumulative impacts of the strategy are positive. The synergistic effects of the strategy are also likely to be positive as it will help to ensure environmental sustainability across the organisation and includes complementary objectives derived from plans such as Local Biodiversity Action Plans.

No individual or cumulative significant negative or negative effect has been identified. Only one uncertain effect was identified relating to the potential impact of vegetation management on biodiversity. The specific 5-year plan objective is to assess the scale of the issue of woody

vegetation growing out of stretches of waterway wall and to propose a management programme. We know that this built heritage issue affects long stretches of the Forth & Clyde and Union in particular. However, we would not anticipate that managing the vegetation to limit further deterioration of the historic fabric would lead to habitat fragmentation and so is unlikely to have a significant negative or negative impact on protected species, neighbouring wildlife sites or the function of these canals as Local Nature Conservation Sites or as part of Green Networks.

4.3.1 Assessment of Strategic Aims

The strategic aims have been assessed using the questions set out in Table 5 under 4.1 Assessment Approach and Methods.

Strategic Aim	SEA topic	biodiversity, flora & fauna	cultural heritage	landscape	
	Prevent damage and encourage favourable condition to designated sites and protected species and undesignated biodiversity, flora and fauna	Manage access to the sites/canal appropriately to avoid damage to habitats and disturbance to wildlife, by heavy public use of sensitive areas	Protect and where appropriate enhance the historic environment	Manage access to the site appropriately to avoid damage to historic assets by heavy public use of sensitive areas features and their setting	Protect and where appropriate enhance the landscape value
Conservation & Maintenance	Neutral/positive effect	Neutral effect	Significant positive effect	Positive effect	Neutral/positive effect
Our heritage assets reach or exceed a 'steady-state', limiting deterioration and maintaining their significance.	Aims include positive benefits for natural heritage assets. Magnitude of these benefits to biodiversity at a strategic level may be neutral.	The emphasis of the strategy is not to increase physical access far beyond existing levels.	Achieving a 'steady-state' for physical, cultural heritage assets will have an overall significant positive effect on the canal historic environment.	Increasing physical access to sensitive heritage assets which could damage them by overuse would conflict with achieving significant positive effects for the protection and enhancement of the historic environment. This is not a strategic aim of the strategy.	Aims include positive benefits for landscapes the canals contribute to. Magnitude of these benefits to landscape value at a strategic level may be neutral.
Participation & Learning	Uncertain effect for habitats where vegetation management is proposed. Effects are likely to be minimal and able to be mitigated.	Impacts of improved access to limited number of historic buildings/sites and to specific areas for training purposes are likely to be negligible.	This would have benefits for the wider historic environment, such as townscapes.		Impacts of improved physical access on landscape value as a whole likely to be neutral.
People are empowered with knowledge and skills to deliver positive heritage outcomes.					
Access & Interpretation		Potential effects during works are likely to be minimal and can be mitigated.	Increasing access, awareness, training opportunities and a sustainable approach will have neutral/positive effects.	Achieving a 'steady-state', raising awareness and a sustainable approach would stabilise sensitive sites and manage access to avoid damage.	Increasing awareness and a sustainable approach will have neutral/positive effects
Our heritage is well known, accessible, promoted and appreciated.					
Sustainability	It is not proposed to increase physical access far beyond existing levels. Increasing awareness and a sustainable approach will have neutral/positive effects.				
Our approach to heritage assures environmental and organisational sustainability and derives social and economic benefits.					

Table 6: Assessment of Strategic Aims

4.3.1 Assessment of Objectives

All of the 20 objectives listed in the 5-year plan derive from these 4 strategic aims. Each objective is broken down into a series of actions. There are 95 actions in total. Objectives Map (<http://www.scottishcanals.co.uk/history--heritage/draft-heritage-strategy/5-year-plan/objectives/objectives-map>) allows you to see the geographical spread of those objectives and related actions which can be linked to a physical location. The legend allows you filter them by strategic aim, asset type or canal. Not all of the actions related to a location have a physical impact, such as a piece of research.

We identified 37 actions under 11 objectives which could be described as either 1) a physical intervention or b) an action which could lead to intervention over the strategy lifespan. The 11 objectives are listed in the table below. The strategic aim to which they principally relate is indicated with a ticked box symbol (☑) and secondary aims are indicated with a plain tick (✓). The relevant actions are then summarised with additional information to indicate the likely extent of those interventions over the strategy plan period.

Objective	Conservation & Maintenance	Participation & Learning	Access & Interpretation	Sustainability	Summary of actions which are (or could lead to) physical interventions
2: Prioritised Maintenance Implement prioritised maintenance programme on significant Scottish Canals built heritage assets	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	6 individual assets (e.g. bridges) identified for specific repair & maintenance. The total number over the strategy lifespan is unlikely to exceed about 25. General action to assess extent of issue of woody growth in canal structures. Could lead to programme which may take 10–25 years to complete. Primary structures affected are stretches of waterway wall on the Forth & Clyde and Union. General action to implement prioritised maintenance programme for significant built heritage assets. The additional maintenance that this represents compared to existing programmes for operational repair & maintenance would be minimal.
3: Vacant properties Stabilise and seek to re-use vacant Scottish Canals historic buildings	<input checked="" type="checkbox"/>				5 specific vacant building are identified for repair/re-use. There are 13 vacant historic buildings in total in Scottish Canals' portfolio.
4: Artefacts and Archive Improve understanding, condition of and access to Scottish Canals' artefacts and archive	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		3 large in-situ artefacts (all in one location) are identified as potentially requiring stabilisation and improvements to their setting. General action to understand extent of artefact collection and implement appropriate strategies. There are number of in-situ artefacts along the canals; the vast majority are small (such as milestones) and are likely to be in a stable condition or requiring minimal maintenance (e.g. rust prevention).
5: Biodiversity Improve the biodiversity and scenic value of our canals	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	General action to identify and implement collaborative projects to control invasive species (e.g. existing local initiative on the Caledonian relating to mink). Similar initiatives (in addition to Scottish Canals' routine control measures) are likely throughout the strategy lifespan. Action to map hedgerows and create maintenance regime. There are a limited number of hedgerows on our estate, some have been planted recently. 1 specific location identified for a project to improve wildlife habitat. Other biodiversity actions are likely to be identified in future plans.
6: Graffiti Develop strategy for graffiti management for the lowland canals.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	Proposed strategy for graffiti management. Graffiti is a more significant issue in the urban areas of the Union and Forth & Clyde. Treatment strategy is likely to be localised and targeted.
9: Access and Interpretation Improve understanding and appreciation of canal heritage through physical access and interpretation.	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		Create and implement programme of canal interpretation strategy objectives – physical intervention is likely to be limited to new or replacement on-site interpretation (e.g. panels) in specific locations. 2 specific projects of this kind of interpretation are identified in the 5-year plan. 1 historic asset is identified to be refurbished to form part of a cycleway. 1 action refers to Antonine Wall WHS Interpretation & Access strategy objectives where relevant to Scottish Canals, e.g. small number of specific on-site interpretation, parking provision and pathworks.
10: Landscape Improve understanding of landscape qualities of each of the Scottish canals and consider measures to maintain or enhance them.	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		Identify opportunities for maintaining/enhancing the landscape qualities of the Antonine Wall WHS and Forth & Clyde and around the Crinan (Dalriada landscape partnership area). Management objectives to be defined for undesignated designed landscapes, 1 potential candidate identified. Other landscape actions are likely to be identified in future plans (e.g. in relation to Special Landscape Areas).
11: Ruins and Buried Archaeology Improve setting, access to and understanding of fragmentary ruins and below-ground remains.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		Identify priorities for management, setting and research objectives. Scottish Canals' estate includes 7 known sites where there are upstanding ruinous remains. Implement priority management objectives for ruins and buried archaeology, 1 site is specifically identified. Objectives are likely to include managing vegetation such as ivy and trees/shrub with penetrating roots to limit damage of above- or below-ground archaeological remains.
12: Traditional Skills Increase use of traditional building skills on Scottish Canals' built heritage.	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Actions relate to certifying existing skills/upskilling and extending provision to carry out work on historic assets using traditional methods (e.g. training placements). The resultant outcomes will contribute to physical intervention described in Objectives 2, 3, 6 and 11.

Objective	Conservation & Maintenance	Participation & Learning	Access & Interpretation	Sustainability	Summary of actions which are (or could lead to) physical interventions
14: Learning Opportunities Improve public participation and learning opportunities using Scottish Canals' heritage as an educational resource.	✓	☑			1 specific project is identified which will provide learning in practical skills implemented on the Forth & Clyde and Union in Falkirk and Edinburgh. Other opportunities to deliver training opportunities and heritage benefits of this kind will be pursued over the strategy lifespan. The resultant outcomes would contribute to physical intervention described in Objectives 2, 4, 5, 6, 9, 10 and 11.
18: Energy Efficiency Improve energy performance of traditional buildings on Scottish Canals' properties.	✓			☑	Build in opportunities for energy efficiency/carbon reduction measures techniques with programme of refurbishment/conservation of traditional building. 1 specific historic building is identified. The resultant outcomes will contribute to physical intervention described in Objectives 2 and 3.

Table 7: Analysis of Objectives and Actions

Similar objectives have been grouped under main five headings (Table 8) and then assessed using the questions set out in Table 5 under 4.1 Assessment Approach and Methods taking account of the analysis in Table 7 to identify any potential cumulative impacts.

Group	Main Objective(s)	Secondary Objective(s)
Repair & maintenance: historic buildings and engineering structures	2, 3, 6	12, 14, 18
Repair & maintenance: in-situ artefacts, ruins and buried archaeology	4, 11	12, 14
Biodiversity	5	14
Access & interpretation	9	14
Landscape	10	14

Table 8: Objectives Groups

Objectives Group	SEA topic	biodiversity, flora & fauna	cultural heritage	landscape	
	Prevent damage and encourage favourable condition to designated sites and protected species and undesignated biodiversity, flora and fauna	Manage access to the sites/canal appropriately to avoid damage to habitats and disturbance to wildlife, by heavy public use of sensitive areas	Protect and where appropriate enhance the historic environment	Manage access to the site appropriately to avoid damage to historic assets by heavy public use of sensitive areas features and their setting	Protect and where appropriate enhance the landscape value
Repair & maintenance: historic buildings and engineering structures	Neutral effect Uncertain effect of one specific action	Neutral effect	Significant positive effect	Neutral effect	Positive effect
Repair & maintenance: in-situ artefacts, ruins and buried archaeology	Neutral effect	Neutral effect	Significant positive effect	Positive effect	Positive effect
Biodiversity	Positive effect	Positive effect	Neutral/positive effect	Neutral effect	Positive effect
Access & interpretation	Neutral effect	Positive effect	Neutral effect	Positive effect	Neutral effect
Landscape	Positive effect	Positive effect	Positive effect	Positive effect	Positive effect

Table 8: Assessment of Objectives Groups

Question 3

Do you have any comments on the findings of the assessment?

5. Mitigation and Monitoring

5.1 Mitigation

Scottish Canals will use our existing environmental appraisal process, which is part of our Environmental Management System, to mitigate and monitor the identified effects of the Heritage Strategy.

Activities and specific projects will be assessed for potential environmental effects. The generic set of questions we use for projects are set out below. We propose to review this process over the coming year. Where actions are required, these are listed in the appraisal. The appraisal is reviewed by Scottish Canals' heritage & environment team. Where potential negative impacts cannot be mitigated within the proposed project scope these will be flagged at this stage and the project proposal reviewed. Appraisals have to be validated by heritage & environment team before projects can be implemented. Projects which meet certain criteria based on cost, risk and cross-departmental working, are also subject to approval by the Scottish Canals' project and programme management board. As the project development and implementation phase progress, the appraisal form is updated by the project manager as actions are completed. Re-validation is required if the project scope is modified. The completed appraisal forms part of Post-Project Appraisal.

Issue	Consider
1 Consultation (Statutory requirements)	Who should be consulted about the works? e.g. The Scottish Environment Protection Agency, Historic Scotland, Scottish Natural Heritage, Local Authority.
2 Local interests (consider advising or consulting about works)	User Group Forum (incl local authorities, wildlife trusts?), neighbours, complainants, users (advance warning of disruption?)
3 Phasing (length of time for works to be complete in)	Could the works be split over two or more years OR programmed with other activities to reduce overall impacts?
4 Timing (consider whether time of year will affect biodiversity or effectiveness of work)	What is the best time with regard to the environment for carrying out the work? If you are not doing the work then, why not?
5 Access for Users (Restrictions/stoppages to towpath and navigation users)	How will the works affect the use of the towpath or channel (do we need diversions)? Will access be maintained or improved for able bodied and disabled?
6 Biodiversity (protected and valuable species, sites and habitats as referred to in the relevant Biodiversity Action Plans)	Check latest revision of Wildlife Sites Register – if designated consult relevant organisation. Refer to BW's Biodiversity Framework / local Biodiversity Action Plans. Will the work affect any BAP targets? Are there any protected species likely to be affected by the works? What will you do to protect species, sites or habitats identified as of value? If in doubt seek expert ecological advice.
7 Fishery and Angling	How will the works affect fish or angling (drawdown, access, turbidity, pollution, loss of habitat, spawning)? If in doubt seek expert advice from your Regional Fisheries Manager.
8 Heritage / Built Environment (including listed structures, original surfaces, fabric or features of structures, buildings, archaeological artefacts or features)	Check Heritage Register – consult relevant authority for consent for ANY works on designated structures. For undesignated sites / structures carry out works on "like for like" basis and refer to Design Manuals / seek expert heritage advice where impact significant.
9 Landscape (the appearance of the fabric of the waterway or the setting and character of the waterway)	How will the works change the appearance or landscape features of the waterway? Will it open up unsightly views? How will you deal with impacts?
10 Noise and Environmental Health Issues (such as nuisance from dust, black smoke, etc.)	How will you deal with noise impacts on neighbours? What other nuisance issues are there and how will you deal with them?
11 Water Resources (drainage of surface water, likelihood of flooding, affect on abstractors)	How will the works affect the flow of water as a resource? How have you checked and how will you deal with the impacts?

Issue	Consider
12 Pollution (inc. potential release / contamination by hazardous substances, or introduction of any solid matter into any watercourse)	Will the works have polluting impacts on soil or water? How will you prepare for and deal with the impacts? Ensure that fuel and chemicals are properly handled and stored.
13 Contaminated Land (e.g. past/current industrial use, presence of Knotweed/Hogweed)	Does the work involve disturbance of, or produce potentially contaminated ground? How will you deal with it?
14 Ground disturbance	Will work involve disturbance of ground, surfaces, services? How will this be dealt with?
15 Works Access (consider damage to structures, sites or habitats on access route)	How will you deal with any environmental impacts caused by plant access to the site? (protection of surfaces and hedgerows, nuisance etc.)
16 Reinstatement	How will you reinstate the site and access to the former condition?
17 Safety (including issues such as to overhead cabling, subsurface ducts and cabling, confined spaces, CDM, etc.)	Connection between Risk Assessment / Method Statement and this appraisal. Ensure safety measures do not raise further environmental issues.
18 Waste (including compliance with regulations)	How will you deal with waste produced? Can this be reused / recycled?
19 Sustainability (long term impacts and costs, energy efficiency etc)	Can we use recycled or other sustainable materials? What are the maintenance requirements? Consider long-term impacts of changes.

Table 9: Scottish Canals' projects environmental appraisal questions

In this SEA, the only potential negative effect identified relates to an uncertain effect on biodiversity which might result from managing woody growth on masonry waterway walls. An assessment of the potential impacts on biodiversity will be built into the feasibility study which will determine the extent of this issue. Mitigation measures might include ensuring that the habitat this vegetation provides could be sustained or enhanced within the immediate environs so that function of the canal as a wildlife corridor is maintained.

Most of the waterway wall that this is likely to affect is scheduled and, as such, we would have to consider the potential impacts on biodiversity before applying for scheduled monument consent to carry out the works. Historic Scotland has a duty to assess the impact of any proposed works on European protected species, Sites of Special Scientific Interest, Special Protection Areas and Special Areas of Conservation. Before applying for scheduled monument consent, we would have to consider what (if any) protected species might be present on the site, or close by, and the effect the proposed works might have on them.

5.2 Monitoring

The actions which derive from the heritage strategy which may have potential environmental effects will be monitored as performance measures of the strategy itself. Compliance with the environmental appraisal process is a Scottish Canals performance indicator and so is subject to audit and projects are also audited for completed Post-Project Appraisals. We would also monitor any consent conditions.

Question 4

Do you have any comments on the measures proposed to mitigate and monitor the environmental effects of the strategy?

5.3 Next Steps

The heritage strategy will be finalised once the consultation on the draft heritage strategy and this environmental report has been completed. Responses will be summarised in a Consultation Report. A Post-Adoption SEA Statement will also be available to explain how the assessment has helped influence the strategy. These documents will be available online at www.scottishcanals.co.uk/heritage-strategy from February 2013.